

SECTION 06100

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following: Wood grounds, nailers, and blocking.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 4 Section "Unit Masonry."
 - 2. Division 6 Section "Finish Carpentry" for nonstructural carpentry items exposed to view and not specified in another Section.
 - 3. Division 6 Section "Interior Architectural Woodwork" for interior woodwork specially fabricated for this Project.
 - 4. Division 9 Section "Gypsum Board Assemblies".

1.3 DEFINITIONS

Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for the following products: Metal framing anchors.
- C. Material certificates for dimensional lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use as well as

design values approved by the Board of Review of American Lumber Standards Committee.

- D. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material:
 - 1. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 - 2. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.
 - 3. For fire-retardant-treated wood products include certification by treating plant that treated material complies with specified standard and other requirements.
 - 4. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
 - 5. Warranty of chemical treatment manufacturer for each type of treatment.
- E. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction evidencing compliance of the following wood products with specified requirements and building code in effect for Project.
 - 1. Metal framing anchors.
 - 2. Power driven fasteners.
 - 3. Fire-retardant-treated wood.

1.5 QUALITY ASSURANCE

- A. Single-Source Responsibility for Fire Retardant Treated Wood: Obtain each type of fire-retardant-treated wood products from one source for both treatment and fire-retardant formulation.
- B. Testing Laboratory Qualifications: To qualify for acceptance, an independent testing laboratory must demonstrate to Government satisfaction, based on evaluation of laboratory-submitted criteria conforming to ASTM E 699, that it has the experience and capability to conduct satisfactorily the testing indicated without

delaying the progress of the Work. The Contractor shall pay for all testing.

1.6 DELIVERY, STORAGE, AND HANDLING

Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
 - 1. RIS - Redwood Inspection Service.
 - 2. NLGA - National Lumber Grades Authority (Canadian).
 - 3. SPIB - Southern Pine Inspection Bureau.
 - 4. WCLIB - West Coast Lumber Inspection Bureau.
 - 5. WWPA - Western Wood Products Association.
- C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
 - 1. Provide dressed lumber, S4S, unless otherwise indicated.
 - 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal

thickness, unless otherwise indicated.

3. Provide lumber with 15 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.2 DIMENSION LUMBER

For light framing provide "Stud," "No. 3," or "Standard" grade lumber for stud framing (2 to 4 inches thick, 2 to 4 inches wide, 10 feet and shorter) and "Stud" or "No. 3" grade for other light framing (2 to 4 inches thick, 2 to 6 inches wide), any species.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: "Standard" grade light-framing-size lumber of any species or board-size lumber as required. "No. 3 Common" or "Standard" grade boards per WCLIB or WWPA rules or "No. 2 Boards" per SPIB rules.

2.4 CONSTRUCTION PANELS FOR BACKING

Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade designation, APA C-D PLUGGED EXPOSURE 1, in thickness indicated, or, if not otherwise indicated, not less than 15/32 inch.

2.5 GYPSUM SHEATHING

- A. Gypsum Sheathing Board with Water-Resistant Core: Gypsum sheathing board consisting of noncombustible gypsum core incorporating a water-resistant material, surfaced on face, back, and long edges with water-repellent paper; complying with ASTM C 79 and requirements indicated below:
 1. Type: Type X (with special fire-resistant properties).

2. Edge and End Configuration: V-shaped tongue and groove long edges, square ends.
 3. Thickness: 5/8 inch.
 4. Size: 4 feet by 8 feet.
- B. Available Products: Subject to compliance with requirements, gypsum sheathing boards that may be incorporated in the Work include, but are not limited to, the following:
- C. Products: Subject to compliance with requirements, provide one of the following: Gypsum Sheathing Board with Water-Resistant Core, Type X:
1. "Centex American Gypsum Sheathing," Centex American Gypsum Co.
 2. "Gyproc Fireguard Sheathing," Domtar Gypsum Co.
 3. "G-P Firestop Sheathing," Georgia-Pacific Corp.
 4. "Gold Bond Fire Shield Jumbo Sheathing," Gold Bond Building Products Div., National Gypsum Co.
 5. "USG Firecode Type X Gypsum Sheathing," United States Gypsum Co.

2.6 PLASTIC BOARD SHEATHING

Specified in Division 4 Masonry Cavity Insulation.

2.7 FASTENERS

General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

- A. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- A. Nails, Wire, Brads, and Staples: FS FF-N-105.
- B. Power Driven Fasteners: National Evaluation Report NER-272.
- C. Wood Screws: ANSI B18.6.1.

- D. Lag Bolts: ANSI B18.2.1.
- E. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

2.8 METAL FRAMING ANCHORS

- A. General: Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:
 - 1. Current Evaluation/Research Reports: Provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this Project.
 - 2. Allowable Design Loads: Provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.
- B. Galvanized Steel Sheet: Steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for Coating Designation G60 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated. Use galvanized steel framing anchors for rough carpentry exposed to weather, in ground contact, or in area of high relative humidity, and where required.

2.9 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. General: Where lumber or plywood is indicated as preservative-treated wood or is specified herein to be treated, comply with applicable requirements of AWPB Standards C2 (Lumber) and C9 (Plywood). Mark each treated item with the AWPB or SPIB Quality Mark Requirements.
- B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
 - 1. Wood nailers, curbs, blocking, stripping, and similar members in connection with roofing, cutters, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed

members in contact with masonry or concrete.

3. Wood framing members less than 18 inches above grade.

- C. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWWPA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

2.10 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

- A. General: Where fire-retardant-treated wood is indicated, pressure impregnate lumber and plywood with fire-retardant chemicals to comply with AWWPA C20 and C27, respectively, for treatment type indicated; identify "fire-retardant-treated wood" with appropriate classification marking of Underwriters Laboratories, Inc., U.S. Testing, Timber Products Inspection, Inc. or other testing and inspecting agency acceptable to authorities having jurisdiction. Current Evaluation/Research Reports: Provide fire-retardant-treated wood for which a current model code evaluation/research report exists that is acceptable to authorities having jurisdiction and that evidences compliance of fire-retardant-treated wood for application indicated.
- B. Interior Type A: For interior locations use fire-retardant chemical formulation that produces treated lumber and plywood with the following properties under conditions present after installation:
1. No reduction takes place in bending strength, stiffness, and fastener holding capacities below values published by manufacturer of chemical formulation that are based on tests by a qualified independent testing laboratory of treated wood products identical to those indicated for this Project under elevated temperature and humidity conditions simulating installed conditions.
 2. No other form of degradation occurs due to acid hydrolysis or other causes related to manufacture and treatment.
 3. No corrosion of metal fasteners results from their contact with treated wood.
- C. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.
- D. Available Products: Subject to compliance with requirements, fire-retardant-treated wood products that may be incorporated in the Work include, but are not limited to, the following:
- E. Products: Subject to compliance with requirements, provide one of the following: Interior Type A Fire-Retardant-Treated Wood:

1. "Dricon," Hickson Corporation.
2. "Pyro-Guard," Hoover Treated Wood Products.
3. "Flameproof LHC-HTT," Osmose Wood Preserving Co, Inc.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, preservative treated, key-bevelled lumber not

less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

3.3 GYPSUM SHEATHING

General: Installation of gypsum board sheathing specified in Division 9 Section "Gypsum Board Assemblies. "

END OF SECTION 06100

SECTION 06105

MISCELLANEOUS CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Rough carpentry work not specified elsewhere and generally intended for support of other work.
2. Wood furring.
3. Wood equipment bases.
4. Utility shelving.
5. Miscellaneous blocking, grounds, nailers, and panels.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 3 Section "Cast-In-Place Concrete" for wood formwork.
2. Division 6 Section "Interior Architectural Woodwork" for interior trim and ornamental elements specially fabricated for this Project.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Wood treatment data from chemical treatment manufacturer. Include chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated material.

1. Preservative Treatment: Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

2. Waterborne Preservative Treatment: Include certification that moisture content of treated wood was reduced to levels specified prior to shipment to Project site.
3. Fire-Retardant Treatment: Include certification by treating plant that treated wood complies with specified requirements.
4. Warranty: Include warranty of chemical treatment manufacturer for each type of treatment.

1.4 DELIVERY, STORAGE, AND HANDLING

Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

- A. Standards: Furnish lumber manufactured to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- B. Grade Stamps: Furnish lumber with each piece factory-marked with grade stamp of inspection agency that indicates grading agency, grade, species, moisture content at time of surfacing, and mill. For exposed lumber, furnish pieces marked on ends or back of each piece.
- C. Sizes: Provide nominal sizes indicated, complying with PS 20 except where actual sizes are specifically noted as being required.
- D. Surfacing: Dressed lumber, S4S, unless otherwise indicated.

2.2 DIMENSION LUMBER FOR CONCEALED CONDITIONS

- A. Species: Any wood species listed by PS 20.
- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture

content).

- C. Grade: No. 3 or utility grade.

2.3 DIMENSION LUMBER FOR EXPOSED CONDITIONS

- A. Species: Any one of the following:

1. Douglas fir-larch.
2. Southern yellow pine.
3. Longleaf yellow pine.
4. Mountain hemlock.
5. Douglas fir.
6. Hem-fir.
7. Western red cedar.
8. Sitka spruce.

- B. Moisture Content: Kiln-dry, KD 15 or MC 15 (15 percent maximum moisture content).

- C. Grade: No. 1 or construction grade.

2.4 BOARDS FOR CONCEALED CONDITIONS

- A. Species: Any wood species listed by PS 20.

- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).

- C. Grade: No. 3, 3 Common, or Standard Boards.

2.5 BOARDS FOR EXPOSED CONDITIONS

- A. Species: Any one of the following:

1. Redwood.
2. Western cedar.
3. Douglas fir.
4. Southern pine.
5. Hem-fir.

- B. Moisture Content: S-DRY, KD 19 or MC 19 (19 percent maximum moisture content).

- C. Grade: No. 1, 1 Common, Construction Heart, or Select Merchantable Boards.

2.6 CONSTRUCTION PANELS

- A. Standards: Comply with requirements of PS 1 Voluntary Product Standard "Construction and Industrial Plywood" for veneer plywood and APA PRP-108 "Performance Standards and Policies for Structural-Use Panels" for performance-rated panels. Furnish construction panels that are each factory-marked with APA trademark for grade specified.
- B. Electrical/Telephone Backing Panels: C-D Plugged, Exposure 1 plywood panels, fire-retardant treated, thickness as indicated but not less than 1/2 inch nominal.

2.7 FASTENERS

- A. General: Where miscellaneous carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- B. Nails, Wire, Brads and Staples: FS FF-N-105.
- C. Bolts: ASTM A 307, Grade A; with ASTM A 563 hex nuts and flat washers.

2.8 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

- A. General: Obtain preservative-treated lumber complying with AWPAC Standard C2. Mark each treated item with AWPAC or SPIB Quality Mark Requirements. Coat surfaces cut after treatment to comply with AWPAC M4.
- B. Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.
 - 1. Kiln-dry interior dimension lumber after treatment to 19 percent maximum moisture content.
 - 2. Treat wood items indicated and in the following circumstances:
 - a. In contact with roofing, flashing, or waterproofing.
 - b. In contact with masonry or concrete.
 - c. Within 18 inches of grade.

- C. Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.

2.9 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

- A. General: Identify treated wood with appropriate classification marking of Underwriters Laboratories Inc. or other testing and inspection agency acceptable to authorities having jurisdiction.
- B. Dimension Lumber: Comply with AWPAC20. Treatment Type: Interior Type A.
- C. Plywood: Comply with AWPAC27. Treatment Type: Interior Type A.
- D. Inspect each piece after drying and discard damaged or defective pieces.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints.
- B. Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.
- C. Coat cut edges of preservative-treated wood to comply with AWPAM4.
- D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

- A. Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and

nuts flush with surfaces, unless otherwise indicated.

3.3 WOOD FURRING

- A. General: Install at spacing indicated, with closure strips at edges and openings. Shim with wood as required for tolerance of finished work.
- B. Furring to Receive Gypsum Board: Install 1-by-2-inch furring at 16 inches o.c., vertically.

END OF SECTION 06105

SECTION 06200

FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Exterior standing and running trim and rails.
2. Interior standing and running trim and rails.
3. Plywood paneling.
4. Hardboard paneling.
5. Plank paneling.
6. Lumber siding.
7. Plywood siding.
8. Hardboard siding.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 6 Section "Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.
2. Division 6 Section "Exterior Architectural Woodwork" for exterior woodwork not specified in this Section.
3. Division 6 Section "Interior Architectural Woodwork" for interior woodwork not specified in this Section.

4. Division 7 Section "Building Insulation" for insulation under siding.
5. Division 7 Section "Wood Shingles and Shakes" for wood shingles and shakes used as siding.
6. Division 7 Section "Siding" for vinyl and aluminum siding.
7. Division 7 Section "Flashing and Sheet Metal" for flashing and other sheet metal work.
8. Division 7 Section "Joint Sealants" for sealants.
9. Division 9 Section "Painting" for back priming and finishing of finish carpentry.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of factory-fabricated product and process specified, including details of construction relative to materials, dimensions of individual components, profiles, textures, and colors.
- C. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material:
 1. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 2. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to Project site.
 3. For fire-retardant-treated wood products include certification by treating plant that treated materials comply with specified standard and other requirements.
 4. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of fire-retardant-treated wood products with requirements indicated.
 5. Warranty of chemical treatment manufacturer for each type of treatment.

- D. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.
 - 1. Each type of paneling specified.
 - 2. Each type of siding specified.
- E. Samples for verification purposes of the following:
 - 1. Lumber and panel products for non-factory-applied finish, 50 square inches for lumber and 8-1/2 inches by 11 inches for panels for each species and cut, finished on one side and one edge, with one-half of exposed surface finished.
 - 2. Lumber and panel products with factory-applied finish, 50 square inches for lumber and 8-1/2 inches by 11 inches for panels for each finish system and color.

1.4 QUALITY ASSURANCE

Installer Qualifications: Arrange for installation of finish carpentry by a firm that can demonstrate successful experience in installing finish carpentry items similar in type and quality to those required for this Project.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels. Provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
- B. Do not deliver interior finish carpentry until environmental conditions meet requirements specified for installation areas. If finish carpentry must be stored in other than installation areas, store only in areas where environmental conditions meet requirements specified for installation areas.

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Obtain and comply with finish carpentry manufacturer's and installer's coordinated advice for optimum temperature and humidity conditions for finish carpentry during its storage and installation.

- B. Weather Conditions: Proceed with finish carpentry only when existing and forecasted weather conditions will permit exterior finish carpentry to be installed in compliance with manufacturer's recommendations and when substrate is completely dry.

1.7 WARRANTY

Special Project Warranty for Siding: Submit a written warranty, executed by manufacturer, agreeing to repair or replace siding that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, deformation or deterioration of siding beyond normal weathering. This warranty shall be in addition to, and not a limitation of, other rights the Owner may have against the Contractor under the Contract Documents. Warranty period for factory-applied finish is 5 years after date of Substantial Completion. Warranty period for siding (excluding finish) is 25 years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Lumber Standards: Comply with PS 20 "American Softwood Lumber Standard" for lumber and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.
- B. Plywood Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood and, for products not manufactured under PS 1, with APA PRP-108.
- C. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
 - 1. RIS - Redwood Inspection Service.
 - 2. SPIB - Southern Pine Inspection Bureau.
 - 3. WCLIB - West Coast Lumber Inspection Bureau.
 - 4. WWPA - Western Wood Products Association.
- D. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing,

and mill. For exposed lumber furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps entirely and provide certificates of grade compliance issued by inspection agency.

- E. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of each voluntary standard referenced below:
 - 1. Particleboard: NPA 8.
 - 2. Medium-Density Fiberboard: NPA 9.
 - 3. Hardwood Plywood: HPMA FE.

2.2 EXTERIOR STANDING AND RUNNING TRIM AND RAILS

- A. Trim and Rails: For trim and rails in form of boards and worked products, provide lumber complying with the following requirements including those of the grading agency listed with species.
 - 1. Species: Redwood; RIS.
 - a. Grade: Clear All Heart VG (Vertical Grain).
 - b. Grade: Clear All Heart.
 - c. Grade: Clear VG (Vertical Grain).
 - d. Grade: Clear.
 - e. Grade: B Grade.
 - 2. Species: Western red cedar; WCLIB OR WWPA.
 - a. Grade: B and Better, 1 and 2 Clear VG (Vertical Grain).
 - b. Grade: B and Better, 1 and 2 Clear.
 - c. Grade: C Select VG (Vertical Grain).
 - d. Grade: C Select.
 - e. Grade: D Select.
 - 3. Texture: Surfaced (smooth).
 - 4. Texture: One face saw-textured, the other surfaced (smooth).
 - 5. Lumber for Transparent Finish (Stained or Clear): Solid lumber stock.
 - 6. Lumber for Painted Finish: Glued-up lumber or solid lumber stock.

2.3 INTERIOR STANDING AND RUNNING TRIM AND RAILS

A. Trim and Rails: For trim in form of boards and worked products, provide lumber complying with the following requirements.

1. Species: Western Red Cedar; WWPA.
2. Species: Ponderosa Pine; WWPA.
3. Species: Douglas Fir; WWPA.
4. Select Grade: B and Better.
5. Select Grade: C Select.
6. Select Grade: D Select.
7. Finish Grade: Superior.
8. Finish Grade: Prime.
9. Finish Grade: E.
10. Select Grade: Supreme.
11. Select Grade: Choice.
12. Select Grade: Quality.
13. Species and Appearance: Clear dry red oak free from defects and selected for compatible grain and color.
14. Texture: Surfaced (smooth).
15. Lumber for Transparent Finish (Stained or Clear): Solid lumber stock.
16. Lumber for Painted Finish: Glued-up lumber or solid lumber stock.

B. Wood Molding Patterns: For stock molding patterns included in Wood Moulding and Millwork Producers Association WM 7 and graded under WM 4, provide the following grade based on finish indicated and fabricated from species specified:

1. Moldings for Transparent Finish: N-Grade.
2. Moldings for Painted Finish: P-Grade.

2.4 PANELING

- A. Hardwood Veneer Plywood Paneling: Manufacturer's stock hardwood plywood panels complying with applicable requirements of ANSI/HPMA HP.
1. Face Veneer Species: Rotary cut natural birch.
 2. Face Veneer Species: Plain sliced red oak.
 3. Face Veneer Species: Plain sliced American walnut.
 4. Backing Veneer Species: Same species as face veneer.
 5. Backing Veneer Species: Any hardwood compatible with face species.
 6. Construction: Lumber core.
 7. Construction: Veneer core.
 8. Construction: Medium-density fiberboard core.
 9. Construction: Particleboard core, Grade 1-M-1, 1-M-2, or 1-M-3 to comply with ANSI A 208.1.
 10. Number of Plies: 3.
 11. Number of Plies: 5.
 12. Number of Plies: 7.
 13. Thickness: 1/4 inch.
 14. Thickness: 1/2 inch.
 15. Thickness: 3/4 inch.
 16. Panel Size: 48 inches by 96 inches.
 17. Panel Size: 48 inches by 120 inches.
 18. Glue Bond: Type II, interior water resistance capability.
 19. Glue Bond: Type I, exterior water resistance capability.
 20. Face Pattern: Plain without grooves and veneer edge matched within each panel face to comply with type of match required by referenced product

standard.

21. Face Pattern: V-grooved, standard random pattern with edge grooves and grooves at center of panel and at third points of panel.
 22. Face Veneer Matching, Panel to Panel: No match.
 23. Face Veneer Matching, Panel to Panel: Sequence matched from one or similar flitches as required by quantity of panels.
 24. Finish: Polish sanded.
 25. Finish: Manufacturer's standard clear factory finish.
- B. Hardboard Paneling: Interior prefinished hardboard paneling complying with ANSI/AHA 135.5, minimum density of 31 pcf.
1. Thickness: 1/8 inch.
 2. Thickness: 3/16 inch.
 3. Thickness: 1/4 inch.
 4. Finish: Class I.
 5. Finish: Class II.
 6. Surface Burning Characteristics: As follows, tested per ASTM E 84:
 - a. Flame Spread: 25 or less.
 - b. Smoke Developed: 10 or less.
- C. Plank Paneling: Interior wood plank paneling complying with Wood Moulding and Millwork Producers Association WM 9.
1. Species: Western red cedar.
 2. Species: Pine.
 3. Grade: Clear Grade 1.
 4. Grade: Clear Grade 2.
 5. Grade: Knotty Grade 1.
 6. Grade: Knotty Grade 2.

7. Grade: Finger Jointed Grade.
- D. Softwood Plank-Type Paneling: Tongue and groove softwood lumber paneling, designed and fabricated for attachment by adhesives or concealed metal clip system, as manufactured by Ostermann and Scheiwe USA under product name "Profilewood" and as specified.
1. Species: Western red cedar.
 2. Species: Western hemlock.
 3. Species: Douglas fir.
 4. Species: California redwood.
 5. Species: Knotty cedar.
 6. Grain: Vertical grain.
 7. Grain: Mixed grain.
 8. Length: 3 feet to 20 feet.
 9. Length: Uniform lengths of dimension indicated or required to provide full-length pieces without intermediate end joints.
 10. Finish: Manufacturer's standard sanded finish, ready for field application of transparent finish.
- E. Paneling Colors, Textures and Patterns: Where manufacturer's standard products are indicated, provide paneling with the following requirements:
1. Match Architect's samples.
 2. Match colors, textures, and patterns indicated by reference to manufacturer's standard designations for these characteristics.
 3. Provide selections made by Architect from manufacturer's full range of standard colors, textures, and patterns for paneling indicated.

2.5 SIDING

- A. Lumber Siding: Kiln-dried wood lumber for siding in size and pattern as shown on drawings.

1. Redwood Bevel Siding: Redwood Inspection Service Grade "Clear All Heart," S1S2E.
 2. Southern Pine Bevel Siding: Southern Pine Inspection Bureau Grade "B&B," S1S2E.
 3. Western Red Cedar Bevel Siding: West Coast Lumber Inspection Bureau Grade "Clear VG Heart," S1S2E.
- B. Plywood Siding: Exterior type, APA 303 Series Siding, in size and pattern as shown on drawings.
1. Thickness: 1/2 inch.
 2. Thickness: 5/8 inch.
 3. Thickness: 3/4 inch.
 4. Thickness: As indicated.
 5. Type: Medium-density overlay, V-grooves at 6 inches on center.
 6. Type: 303-6-W cedar-faced rough-sawn Texture 1-11, grooves 4 inches on center, 48 inches by 96 inches.
 7. Type: 303-OC redwood-faced rough-sawn reverse board and batten, grooves 12 inches on center, 48 inches by 120 inches.
 8. Type: 303-18-S/W fir-faced rough-sawn channel-grooved, grooves 4 inches on center, 48 inches by 96 inches.
 9. Type: 303-NL-S/W pine-faced rough-sawn plain, 48 inches by 96 inches.
- C. Hardboard Siding: Wood textured hardboard, in size and pattern as shown on drawings complying with ANSI/AHA A135.6.
1. Type: Lap siding.
 2. Type: Square edge panels.
 3. Type: Shiplap edge panel siding.
 4. Type: 7/16 inch thick, channel-grooved with grooves 4 inches on center, 48 inches by 96 inches with panel manufacturer's standard exterior enamel primer.

5. Texture: Smooth.
 6. Texture: Rough.
- D. Siding Colors, Textures, and Patterns: Where manufacturer's standard products are indicated, provide siding with the following requirements:
1. Match Architect's samples.
 2. Match colors, textures, and patterns indicated by reference to manufacturer's standard designations for these characteristics.
 3. Provide selections made by Architect from manufacturer's full range of standard colors, textures, and patterns for siding indicated.
- E. Available Manufacturers: Subject to compliance with requirements, manufacturers offering materials that may be incorporated in the Work include, but are not limited to, the following:
- F. Manufacturer: Subject to compliance with requirements, provide materials by one of the following:
1. Lumber Siding:
 - a. Abitibi-Price Corp.
 - b. Champion International Corp.
 - c. Georgia-Pacific Corp.
 - d. Masonite Corp.
 2. Plywood Siding:
 - a. Abitibi-Price Corp.
 - b. Champion International Corp.
 - c. Georgia-Pacific Corp.
 3. Hardboard Siding:
 - a. Abitibi-Price Corp.
 - b. Champion International Corp.
 - c. Georgia-Pacific Corp.
 - d. Masonite Corp.
 - e. Weyerhaeuser.

2.6 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Stainless steel, noncorrosive aluminum or hot-dip galvanized nails, in sufficient length to penetrate minimum of 1-1/2 inches

into substrate unless recommended otherwise by manufacturer.

1. Provide prefinished nails for face nailing of material to receive stain in color to match where face nailing is unavoidable.
 2. Countersink nails and fill surface where face nailing is unavoidable.
- B. Fasteners for Interior Finish Carpentry: Nails, screws, and other anchoring devices of type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible.
1. Countersink nails, fill surface flush, and sand where face nailing is unavoidable.
 2. Where finish carpentry materials are exposed in areas of high humidity, provide fasteners and anchorages with hot-dip galvanized coating complying with ASTM A 153.
- C. Felt Underlayment: Asphalt-saturated organic felts, unperforated, conforming to requirements of ASTM D 26, Type 1, No. 15.
- D. Adhesives: Comply with manufacturer's recommendations for adhesives.
- E. Flashing: Comply with requirements of Division 7 Section "Flashing and Sheet Metal" for flashing materials installed in finish carpentry. Horizontal Joint Flashing for Siding: Preformed galvanized steel or aluminum Z-shaped flashing.
- F. Sealants: Comply with requirements of Division 7 Section "Joint Sealants" for materials required for sealing siding work.

2.7 PRESERVATIVE TREATMENT BY NONPRESSURE METHOD

Treatment Standard: Comply with NWWDA I.S.4 for exterior finish carpentry to receive water-repellent preservative treatment.

- A. Water-Repellent Preservative: NWWDA tested and accepted preservative and water-repellent formulation containing 3-iodo-2-propynyl butyl carbamate (IPBC) as its active ingredient.
- B. Water-Repellent Preservative/Insecticide: NWWDA tested and accepted preservative and water-repellent formulation containing 3-iodo-2-propynyl butyl carbamate (IPBC) as its active ingredient, combined with an insecticide containing chlorpyrifos as its active ingredient.
- C. Extent of Treatment: Treat each item of exterior finish carpentry regardless of

species from which it is fabricated.

D. Extent of Treatment: As indicated.

2.8 FIRE-RETARDANT TREATMENT BY PRESSURE PROCESS

- A. General: Where fire-retardant-treated wood is indicated, pressure impregnate with fire-retardant chemicals to comply with AWPAC20 for lumber and AWPAC27 for plywood. Identify "fire-retardant-treated wood" with appropriate classification marking of Underwriters Laboratories, Inc.; U.S. Testing; Timber Products Inspection, Inc.; or other testing and inspecting agency acceptable to authorities having jurisdiction. Provide fire-retardant wood for which a current model code evaluation and research report exists that is acceptable to authorities having jurisdiction and that evidences compliance of fire-retardant-treated wood for application indicated.
- B. Interior Type A: For interior locations use fire-retardant chemical formulation that produces treated lumber and plywood with the following properties under conditions after installation:
 - 1. No reduction takes place in bending strength, stiffness, and fastener-holding capacities below values published by manufacturer of chemical formulation that are based on tests by a qualified independent testing laboratory of treated wood products identical to those indicated for this Project under elevated temperature and humidity conditions simulating installed conditions.
 - 2. No other form of degradation occurs due to acid hydrolysis or other causes related to manufacture and treatment.
 - 3. No corrosion of metal fasteners results from their contact with treated wood.
- C. Exterior Type: Use for exterior locations and where indicated.
- D. Inspect each piece of treated lumber or plywood after drying and discard damaged or defective pieces.
- E. Available Products: Subject to compliance with requirements, fire-retardant-treated wood products that may be incorporated in the Work include, but are not limited to, the following:
- F. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Interior Type A Fire-Retardant-Treated Wood:

- a. "Dricon," Hickson Corporation.
 - b. "Pyro-Guard," Hoover Treated Wood Products.
 - c. "Flame Proof LHC-LTT," Osmose Wood Preserving Co., Inc.
2. Exterior Type Fire-Retardant-Treated Wood: "Exterior Fire-X," Hoover Treated Wood Products.

2.9 FABRICATION

- A. Wood Moisture Content: Comply with requirements of specified inspection agencies and manufacturer's recommendations for moisture content of finish carpentry in relation to relative humidity conditions existing during time of fabrication and in installation areas. Provide finish carpentry with moisture content that is compatible with Project requirements.
- B. Fabricate finish carpentry to dimensions, profiles and details indicated. Ease edges to radius indicated for the following:
 1. Lumber less than 1 inch in nominal thickness: 1/16 inch.
 2. Lumber 1 inch or more in nominal thickness: 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine substrates for compliance with requirements for installation tolerances and other conditions affecting installation and performance of finish carpentry. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Condition finish carpentry to average prevailing humidity conditions in installation areas before installation for a minimum of 24 hours unless longer conditioning recommended by manufacturer.
- C. Backprime lumber for painted finish exposed on the exterior. Comply with requirements for surface preparation and application in Section "Painting."

3.3 INSTALLATION, GENERAL

- A. Do not use finish carpentry materials that are unsound, warped, bowed, twisted, improperly treated or finished, not adequately seasoned, or too small to fabricate with proper jointing arrangements. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install finish carpentry plumb, level, true, and aligned with adjacent materials. Use concealed shims where required for alignment.
 - 1. Scribe and cut finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
 - 2. Install to tolerance of 1/8 inch in 8 feet for plumb and level. Install adjoining finish carpentry with 1/16 inch maximum offset for flush installation and 1/8 inch maximum offset for reveal installation.
 - 3. Coordinate finish carpentry with materials and systems that may be in or adjacent to standing and running trim and rails. Provide cutouts for mechanical and electrical items that penetrate exposed surfaces of trim and rails.
- C. Finish in accordance with specified requirements.
- D. Refer to Division 9 Sections for final finishing of finish carpentry.

3.4 STANDING AND RUNNING TRIM AND RAILS

Install with minimum number of joints practical, using full-length pieces from maximum lengths of lumber available. Stagger joints in adjacent and related standing and running trim and rails. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Use scarf joints for end-to-end joints. Plane back of casings to provide uniform thickness across joints if required. Match color and grain pattern across joints. Install trim after drywall joint finishing operations are completed. Drill pilot holes in hardwood prior to nailing or fastening to prevent splitting. Fasten to prevent movement or warping. Countersink nail heads on exposed carpentry work and fill holes. Fit exterior joints to exclude water. Apply flat grain lumber with bark side exposed to weather.

3.5 PANELING

- A. Plywood Paneling: Select and arrange panels on each wall for best match of adjacent panels for paneling where grain character or color variations are noticeable. Install with uniform tight joints between panels.

1. Attach panels to supports with manufacturer's recommended panel adhesive and fasteners. Space fasteners as recommended by panel manufacturer.
 2. Conceal fasteners to greatest extent practical.
 3. Arrange panels with V-grooves and joints over supports, and fasten to supports with nails of type and at spacing recommended by panel manufacturer. Use fasteners with prefinished heads matching V-groove color.
- B. Hardboard Paneling: Install in accordance with manufacturer's recommendations. Leave 1/4-inch gap to be covered with trim at top, bottom, and openings. Butt adjacent panels with moderate contact.
1. Stud Substrate: Install with 1-inch annular ring shank hardboard nails.
 2. Plaster or Wallboard Substrate: Install with 1-5/8-inch annular ring shank hardboard nails.
 3. Nailing: Space nails 4 inches apart at all edges and 8 inches apart at intermediate stud or furring locations unless required otherwise by manufacturer.
- C. Plank Paneling: Install in accordance with manufacturer's instructions. Arrange in random-width pattern suggested by manufacturer, unless boards or planks are of uniform width. Stagger end joints in random pattern to uniformly distribute joints on each wall. Install with uniform joints with only tongue-and-groove joints or end-matched joints within each field of paneling.
1. Select and arrange panels on each wall for best match of adjacent panels for paneling where grain character or color variations are noticeable. Install with uniform tight joints between panels.
 2. Fasten paneling to substrate complying with manufacturer's recommendations for concealed nailing.
 3. Fasten paneling to wood substrate using manufacturer's concealed clip system.
 4. Fasten paneling to gypsum wallboard substrates using adhesive.

3.6 SIDING

- A. Underlayment: Apply one layer of felt underlayment horizontally over entire surface to receive siding, lapping ends and succeeding courses a minimum of 2

inches. Fasten felt with sufficient number of galvanized roofing nails or noncorrosive staples to hold underlayment in place until siding application.

- B. Lumber Siding: Apply starter strip along bottom edge of sheathing or sill. Install first course of siding with lower edge at least 1/8 inch below starter strip and subsequent courses lapped 1 inch over course below. Nail at each stud.
1. Leave 1/8-inch gap at trim and corners unless recommended otherwise by manufacturer and apply sealant.
 2. Butt joints only at stud locations, nailing top and bottom on each side and staggering joints in subsequent courses.
 3. Install prefabricated outside corners as recommended by manufacturer of siding materials.
- C. Plywood Siding: Install panels with edges backed by solid lumber framing or blocking. Nail at 6-inch intervals at panel perimeter and 12-inch intervals at intermediate supports unless other frequency recommended by manufacturer. Leave 1/16-inch space between adjacent panels unless recommended otherwise by panel manufacturer. Leave 1/8-inch space at perimeter and openings unless recommended otherwise by panel manufacturer.
1. Seal butt joints at inside and outside corners and at trim locations.
 2. Install continuous metal flashing at horizontal panel joints with 1/8-inch expansion gap.
 3. Apply battens and corner trim as detailed on the drawings.
 4. Conceal fasteners to greatest extent practical by countersinking and filling, by placing in grooves of siding pattern, or by concealing with applied trim or battens as detailed. Do not nail through overlapping pieces.
- D. Hardboard Siding: Install hardboard siding complying with AHA "Recommended Basic Application Instructions for Hardboard Siding." Install panels with edges backed by solid lumber framing or blocking. Leave 3/16-inch space at perimeter and openings unless recommended otherwise by panel manufacturer.
1. Seal butt joints at inside and outside corners and at trim locations.
 2. Install continuous metal flashing at horizontal panel joints with 1/8-inch expansion gap.
 3. Apply battens and corner trim as detailed on the drawings.

- 4. Conceal fasteners to greatest extent practical by countersinking and filling, by placing in grooves of siding pattern, or by concealing with applied trim or battens as detailed.
- E. Flashing: Install metal flashing as indicated on the drawings and recommended by siding manufacturer.
- F. Finish: Apply finish within 2 weeks of installation.
- G. Install siding to comply with manufacturer's warranty requirements.

3.7 ADJUSTING

Repair damaged or defective finish carpentry where possible to eliminate functional or visual defects. Where not possible to repair, replace finish carpentry. Adjust joinery for uniform appearance.

3.8 CLEANING

Clean finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.9 PROTECTION

Provide final protection and maintain conditions that ensure finish carpentry is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06200

SECTION 06402

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior standing and running trim.
2. Wood cabinets (casework).
3. Laminate clad cabinets (plastic-covered casework).
4. Cabinet tops (countertops).
5. Interior miscellaneous ornamental items.

B. Related Sections: The following sections contain requirements that relate to this section:

1. Division 6 Section "Rough Carpentry" for furring, blocking, and other carpentry work that is not exposed to view.
2. Division 8 Section "Flush Wood Doors" for doors specified by reference to architectural woodwork standards.
3. Division 9 Section "Painting" for final finishing of installed architectural woodwork.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

- B. Product data for each type of product and process specified in this section and incorporated into items of architectural woodwork during fabrication, finishing, and installation.
- C. Fire-retardant treatment data for material impregnated by pressure process to reduce combustibility. Include certification by treating plant that treated materials comply with requirements.
- D. Shop drawings showing location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components. Apply WIC Certified Compliance Label to first page of shop drawings. (for acid resistant tops).
- E. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.
 - 1. Plastic laminate.
 - 2. Factory-applied opaque finishes.
- F. Samples for verification purposes of the following:
 - 1. Lumber with or for transparent finish, 50 square inches, for each species and cut, finished on one side and one edge.
 - 2. Veneer leaves representative of and selected from flitches to be used for transparent finished woodwork.
 - 3. Wood veneer faced panel products;, with or for transparent finish, 8-1/2 inches by 11 inches, for each species and cut with one half of exposed surface finished, with separate samples of unfaced panel product used for core.
 - 4. Lumber and panel products with factory-applied opaque finish, 8- 1/2 inches by 11 inches for panels and 50 square inches for lumber, for each finish system and color, with one half of exposed surface finished.
 - 5. Laminate clad panel products, 8-1/2 inches, by 11 inches for each type, color, pattern, and surface finish, with separate samples of unfaced panel product used for core.
 - 6. Corner pieces as follows:
 - a. Cabinet front frame joints between stiles and rail as well as exposed end pieces, 18 inches high by 18 inches wide by 6 inches

- deep.
 - b. Miter joints for standing trim.
- 7. Exposed cabinet hardware, one unit of each type and finish.
- G. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.
- H. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.
- B. Single-Source Responsibility: Arrange for production by a single firm of architectural woodwork with sequence matched wood veneers.
- C. Installer Qualifications: Arrange for installation of architectural woodwork by a firm that can demonstrate successful experience in installing architectural woodwork items similar in type and quality to those required for this project.
- D. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated.
 - 1. Casework.
 - 2. Plastic laminate countertops.
 - 3. Laboratory countertops.
- E. WIC Certificate of Compliance: For types of architectural woodwork not eligible for marking with WIC Certified Compliance Label, issue WIC Certificates of Compliance certifying that items comply with WIC requirements for AWI grade indicated.
- F. Hardware Coordination: Distribute copies of approved scheduled for cabinet hardware specified in Division 8 Section "Finish Hardware" to manufacturer of architectural woodwork; coordinate cabinet shop drawings and fabrication with hardware requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration.
- B. Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

1.6 PROJECT CONDITIONS

- A. Environmental Conditions: Obtain and comply with Woodwork Manufacturer's and Installer's coordinated advice for optimum temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.
- B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.

PART 2 - PRODUCTS

2.1 HIGH PRESSURE DECORATIVE LAMINATE MANUFACTURERS

Available Manufacturers: Subject to compliance with requirements, manufacturers offering high pressure decorative laminates which may be incorporated in the work include but are not limited to the following:

Formica Corp.
Laminart.
Micarta Div., Westinghouse Electric Corp.
Nevamar Corp.
Ralph Wilson Plastics Co.
Sterling Engineered Products, Inc.

2.2 MATERIALS

- A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated and, where the following products are part of woodwork, with requirements of the referenced product standards, that apply to product characteristics indicated:
1. Hardboard: ANSI/AHA A135.4
 2. High Pressure Laminate: NEMA LD 3.
 3. Medium Density Fiberboard: ANSI A208.2.
 4. Particleboard: ANSI A208.1
 5. Softwood Plywood: PS 1.
 6. Formaldehyde Emission Levels: Comply with formaldehyde emission requirements of each voluntary standard referenced below:
 - a. Particleboard: NPA 8.
 - b. Medium Density Fiberboard: NPA 9.
 - c. Hardwood Plywood: HPMA FE.
- B. Fire-Retardant Particleboard: Where indicated, provide panels complying with the following requirements that have fire-retardant chemicals bonded to softwood particles at time of panel manufacture to achieve products identical to those tested for flame spread of 20 or less and for smoke developed of 25 or less per ASTM E 84 by UL or other testing and inspecting organization acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.
1. For 45-lb-density panels and thicknesses of 3/4 inch and less, comply with ANSI A208.1 for Grade 1-M-1 except that minimums for modulus of elasticity and screw-holding capacity on face and edge shall be 300,000 psi, 250 lb, and 225 lb, respectively.
 2. For 44-lb-density panels and thicknesses of 13/16 inch to 1-1/4 inch, comply with ANSI A208.1 for Grade 1-M-1 except that minimums for modulus of rupture, modulus of elasticity, internal bond, linear expansion, and screw-holding capacity on face and edge shall be 1300 psi, 250,000 psi, 60 psi, 0.50 percent, 250 lb, and 175 lb, respectively.
 3. Product: Subject to compliance with requirements, provide "Duraflake FR" by Duraflake Div.; Willamette Industries, Inc.

2.3 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.
- B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of cabinets and edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.
 - 2. Edges of rails and similar members more than 1 inch in nominal thickness: 1/8 inch.
- C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- D. Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

2.4 FIRE-RETARDANT-TREATED LUMBER

- A. General: Where indicated, pressure impregnate lumber with fire-retardant chemicals of formulation indicated to produce materials with fire performance characteristics specified.
- B. Fire-Retardant Chemicals: Use chemical formulations specified that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated lumber from untreated lumber. Low-Hygroscopic Formulation: Interior Type A per AWP A C20.
- C. Fire Performance Characteristics: Provide materials identical to those tested for the following fire performance characteristics per ASTM test methods indicated by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify treated lumber with classification marking of inspecting and testing organization in the form of separable paper label or, where

required by authorities having jurisdiction, of imprint on lumber surfaces that will be concealed from view after installation. Surface Burning Characteristics shall not exceeding values indicated below, tested per ASTM E 84 for 30 minutes with no evidence of significant combustion.

1. Flame Spread: 25.
 2. Smoke Developed: 50.
- D. Mill lumber after treatment, within limits set for wood removal that does not affect listed fire performance characteristics, using a woodworking plant certified by testing and inspecting organization.
- E. Kiln-dry woodwork after treatment to levels required for untreated woodwork. Maintain moisture content required by kiln drying before and after treatment.
- F. Discard treated lumber that does not comply with requirements of referenced woodworking standard. Do not use twisted, warped, bowed, discolored, or otherwise damaged or defective lumber.
- G. Available Products: Subject to compliance with requirements, products that may be incorporated in the work include but are not limited to Low-Hygroscopic Formulation (Type A) as manufactured by "Dricon"; Koppers Co., Inc. or "Flameproof LHC"; Osmose Wood Preserving, Inc.

2.5 STANDING AND RUNNING TRIM AND RAILS FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Backout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work.
- C. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- D. Grade: Premium.
- E. Lumber Species: White oak, rift sawn.

2.6 STANDING AND RUNNING TRIM AND RAILS FOR OPAQUE FINISH

- A. Quality Standard: Comply with AWI Section 300.
- B. Grade: Economy.

- C. Backout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.
- E. Lumber Species: Any closed-grain hardwood listed in referenced woodworking standard.

2.7 WOOD CABINETS (CASEWORK) FOR TRANSPARENT FINISH

- A. Quality Standard: Comply with AWI Section 400 and its Division 400A "Wood Cabinets."
- B. Grade: Premium.
- C. Wood Species for Exposed Surfaces: White oak, rift sawn/cut.
 - 1. Grain Matching: Run and match grain vertically for drawer fronts, doors, and fixed panels.
 - 2. Matching of Veneer Leaves: Book match.
 - 3. Veneer Matching Within Panel Face: Running match.
- D. Wood Species for Semiexposed Surfaces: Match species and cut indicated for exposed surfaces.

2.8 WOOD CABINETS (CASEWORK) FOR OPAQUE FINISH

- A. Quality Standard: AWI Section 400 and its Division 400A "Wood Cabinets."
- B. Grade: Economy.
- C. Species for Exposed Lumber Surfaces: Any close-grained hardwood listed in referenced woodworking standard.

2.9 LAMINATE CLAD CABINETS (PLASTIC-COVERED CASEWORK)

- A. Quality Standard: Comply with AWI Section 400 and its Division 400B "Laminate Clad Cabinets."

- B. Grade: Premium.
- C. AWI Type of Cabinet Construction: Flush overlay.
- D. Laminate Cladding: High pressure decorative laminate complying with the following requirements:
 - 1. Colors, Patterns, and Finishes: Provide selections made by Contracting Officer from laminate manufacturer's full range of standard colors and finishes.
 - 2. Laminate Grade for Exposed Surfaces: Provide laminate cladding complying with the following requirements for type of surface and grade.
 - a. Horizontal Surfaces Other Than Tops: GP-50 (0.050-inch nominal thickness).
 - b. Postformed Surfaces: PF-42 (0.042-inch nominal thickness).
 - c. Vertical Surfaces: GP-50 (0.050-inch nominal thickness).
 - d. Edges: PVC matching laminate in color, pattern, and finish.
 - 3. Semiexposed Surfaces: Provide high pressure laminate, GP-28.

2.10 CABINET HARDWARE AND ACCESSORY MATERIALS

- A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Finish Hardware."
- B. Cabinet Hardware Schedule: Refer to schedule at end of this section for cabinet hardware required for architectural cabinets.
- C. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with ANSI/BHMA A156.18 for Satin Chromium Plated, Brass or Bronze Base: BHMA 626.
- D. For concealed hardware provide manufacturer's standard finish that complies with product class requirements of ANSI/BHMA A156.9.
- E. Clear Float Glass for Doors: ASTM C 1036, Type I, Class 1, Quality q3, 1/4-inch thick unless otherwise indicated.

2.11 ARCHITECTURAL CABINET TOPS (COUNTERTOPS)

- A. Quality Standard: Comply with AWI Section 400 and its Division 400C.

B. Type of Top: High pressure decorative laminate complying with the following:

1. Grade: Premium.
2. Laminate Cladding for Horizontal Surface: Provide high pressure decorative laminate from selections made by Contracting Officer from manufacturer's full range of standard colors and finishes; Grade: PF-42 (0.042-inch nominal thickness).
3. Edge Treatment: Same as laminate cladding on horizontal surfaces but from selections made by Contracting Officer from manufacturer's full range of standard colors and finishes; Grade: PF-42 (0.042-inch nominal thickness).

2.12 LAMINATE CLAD LABORATORY TOPS AND SPLASHES (Film Processing and Finishing)

A. Quality Standard: Comply with WIC Section 17 "Laboratory Tops and Splashes Acid Resistant Laminated Plastic."

B. Grade: Premium.

2.13 INTERIOR MISCELLANEOUS ORNAMENTAL ITEMS FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWI Section 700.

B. Grade: Premium.

C. Lumber Species: White oak, rift sawn.

2.14 INTERIOR MISCELLANEOUS ORNAMENTAL ITEMS FOR OPAQUE FINISH

A. Quality Standard: Comply with AWI Section 700.

B. Grade: Premium.

C. Lumber Species: Any closed-grain hardwood listed in referenced woodworking standard.

2.15 FASTENERS AND ANCHORS

- A. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements. For metal framing supports, provide screws as recommended by metal framing manufacturer.
- B. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
- C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

2.16 FACTORY FINISHING OF INTERIOR ARCHITECTURAL WOODWORK

- A. Quality Standard: Comply with AWI Section 1500 unless otherwise indicated.
- B. General: The entire finish of interior architectural woodwork is specified in this section, regardless of whether factory applied or applied after installation. The extent to which the final finish is applied to architectural woodwork at factory is the Contractor's option, except the factory shall apply at least a prime/base coat to the greatest extent possible before delivery.
- C. Primary and Prefinishing: This section specifies the primary and prefinishing (if any) of interior architectural woodwork to be performed at the factory. Refer to Division 9 Section "Painting" for final finishing of installed architectural woodwork and for material and application requirements of prime coats for woodwork not specified to receive final finish in this section.
- D. Preparations for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces and similar preparations for finishing of architectural woodwork, as applicable to each unit of work.
- E. Transparent Finish for Open-Grain Woods: Comply with requirements indicated below for grade, finish system, staining, effect, and sheen, with sheen measured on 60 deg gloss meter per ASTM D 523.
 - 1. Grade: Premium.
 - 2. Staining: Match approved sample for color.
 - 3. Effect: Closed grain (filled finish).

4. Sheen: Semigloss bright rubbed effect 55-60 deg.
- F. Opaque Finish: Comply with requirements indicated below for grade, finish system, color, effect, and sheen:
1. Grade: Premium.
 2. AWI Finish System #11: Catalyzed polyurethane.
 3. Color: Provide selections made by Contracting Officer from full range of standard colors available in finish system specified.
 4. Sheen: Semigloss bright rubbed effect 55-60 deg.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
- B. Deliver concrete inserts and similar anchoring devices to be built into substrates well in advance of time substrates are to be built.
- C. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.

3.2 INSTALLATION

- A. Quality Standard: Install woodwork to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.
- B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
- C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- D. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with recommendations of chemical treatment manufacturer

including those for adhesives where are used to install woodwork.

- E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
- F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns and miter at corners.
- G. Cabinets: Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
- H. Tops: Anchor securely to base units and other support systems as indicated.
- I. Complete the finishing work specified in this section to whatever extent not completed at shop or before installation of woodwork.
- J. Refer to the Division 9 sections for final finishing of installed architectural woodwork.

3.3 ADJUSTMENT AND CLEANING

- A. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.4 PROTECTION

Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensures that woodwork is being without damage or deterioration at time of Substantial Completion.

3.5 HARDWARE SCHEDULE

ADJUSTABLE SHELF STANDARDS	255NP	K & V
SHELF SUPPORTS	256NP	K & V
STEEL STANDARDS	#80	K & V
BRACKETS	#180 X 12"	K & V
DRAWER SLIDES (FULL EXT.)	1429	K & V
DRAWER & DOOR PULLS	MC-400	K & V
CONCEALED DOOR HINGES (SELF CLOSING)		
OVERLAY	71M2550	BLUM
HALF OVERLAY/TWIN	71M2650	BLUM
MAGNETIC DOOR CATCHES	MC-84	LAMP

END OF SECTION 06402